US008550269B2

(12) **United States Patent**
Lane

(10) **Patent No.: US 8,550,269 B2**
(45) **Date of Patent: Oct. 8, 2013**

(54) **DRINK BOTTLE AND LID WITH COVER FOR DRINK SPOUT**

(75) Inventor: **Marvin Lane**, Round Lake Beach, IL (US)

(73) Assignee: **Thermos L.L.C.**, Schaumburg, IL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **13/155,512**

(22) Filed: **Jun. 8, 2011**

(65) **Prior Publication Data**

US 2012/0312832 A1 Dec. 13, 2012

(51) **Int. Cl.**

A47G 19/22	(2006.01)
B65D 41/56	(2006.01)
B65D 25/28	(2006.01)
B65D 51/18	(2006.01)
B65D 25/40	(2006.01)

(52) **U.S. Cl.**

USPC **215/229**; 220/215.5; 220/254.3; 220/708; 222/568

(58) **Field of Classification Search**

USPC 220/212.5, 212, 710.5, 708, 709, 220/705, 254.3, 254.1, 284, 259.1, 256.1; 215/229, 228, 388, 200; 222/568, 567, 566, 222/200

IPC B65D 25/28, 41/56, 51/18, 51/00, 5/72, B65D 25/42, 25/40; A47G 19/22

See application file for complete search history.

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Primary Examiner — Robert J Hicks

(74) *Attorney, Agent, or Firm* — Schiff Hardin LLP

(57) **ABSTRACT**

A drink bottle with a removable lid includes an inner lid attached to the mouth of the bottle and an outer lid or cover pivotably mounted on said inner lid. A drink spout extends from the inner lid. The outer lid or cover may be locked into a closed position covering the drink spout. A push button release is activated to unlock the outer lid and permit the outer lid to pivot to a position exposing the drink spout for access by a user. The outer lid may be snapped of the inner lid by moving the outer lid beyond an open position. A bail handle on the outer lid is retained in a stowed position in a recess in the outer lid or is moved to a deployed position. The bail handle disconnects from the outer lid when moved beyond the deployed position. The push button for releasing the closed outer lid is enclosed within a tunnel in the inner lid.

16 Claims, 11 Drawing Sheets

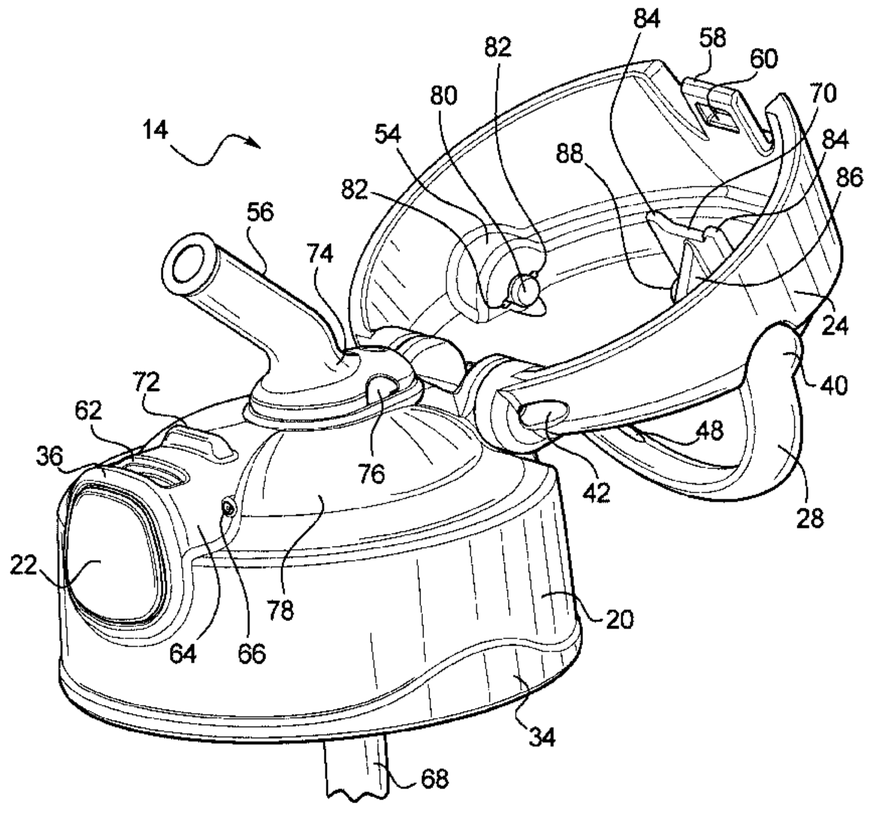

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FIG. 1

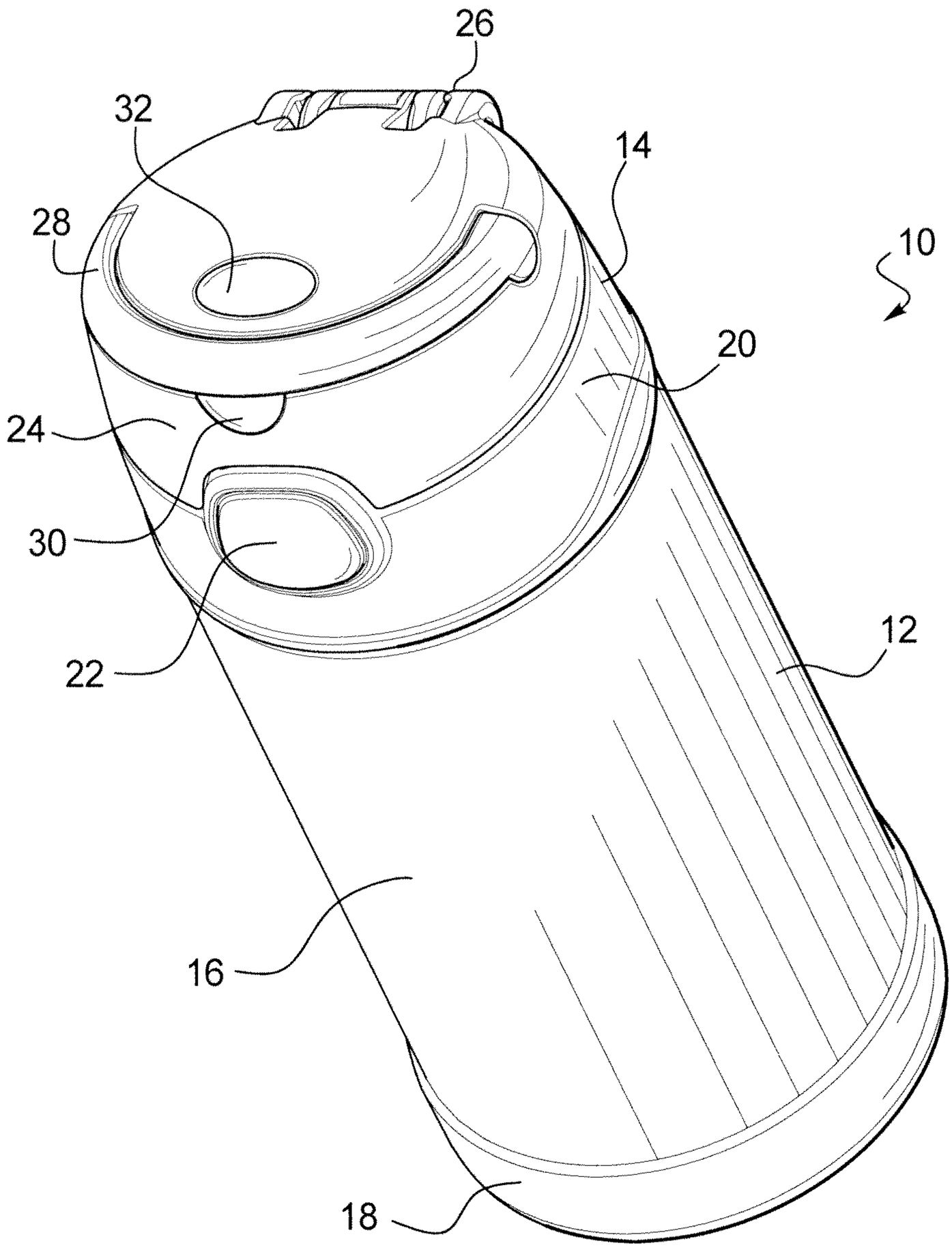

FIG. 2

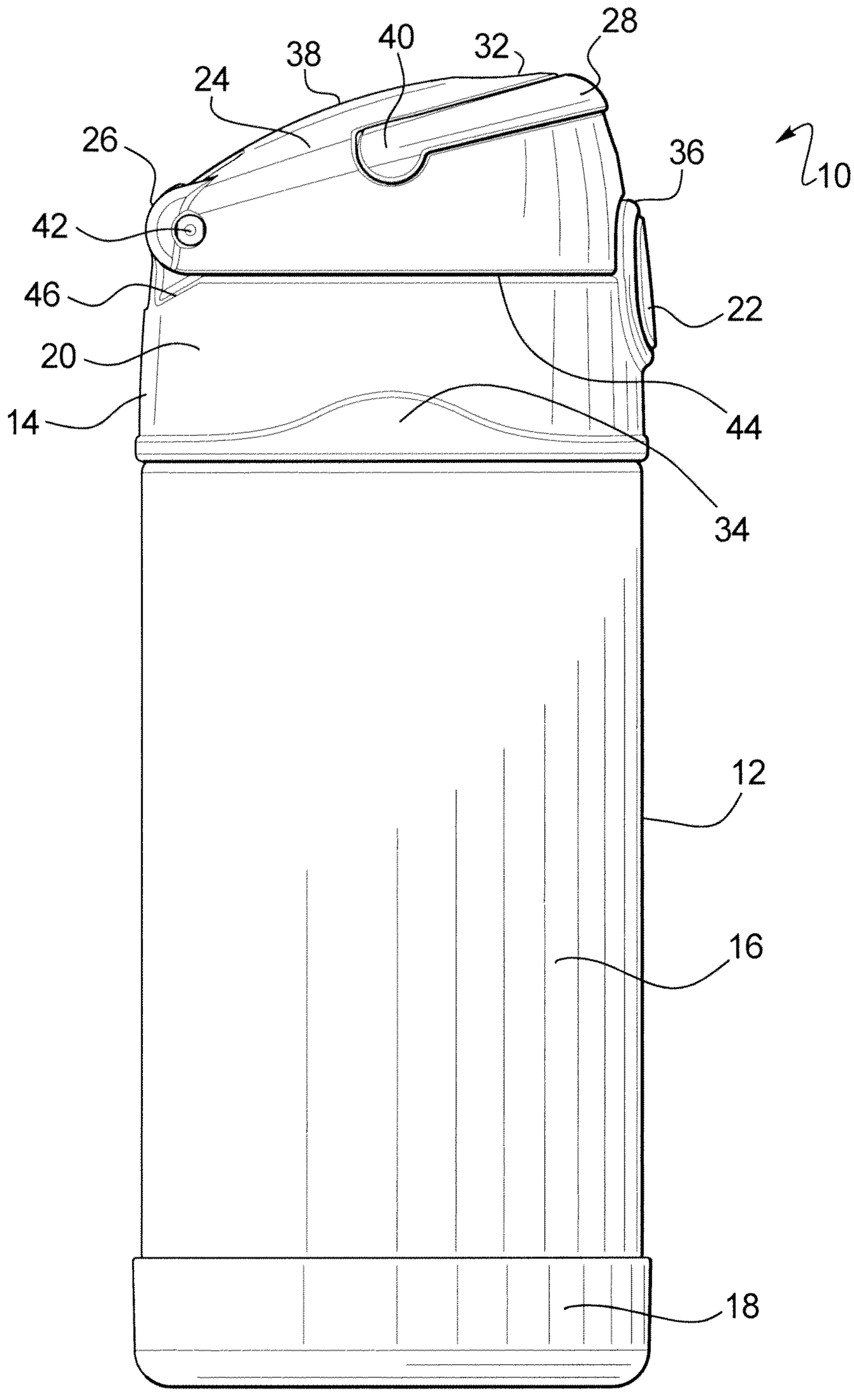

FIG. 3

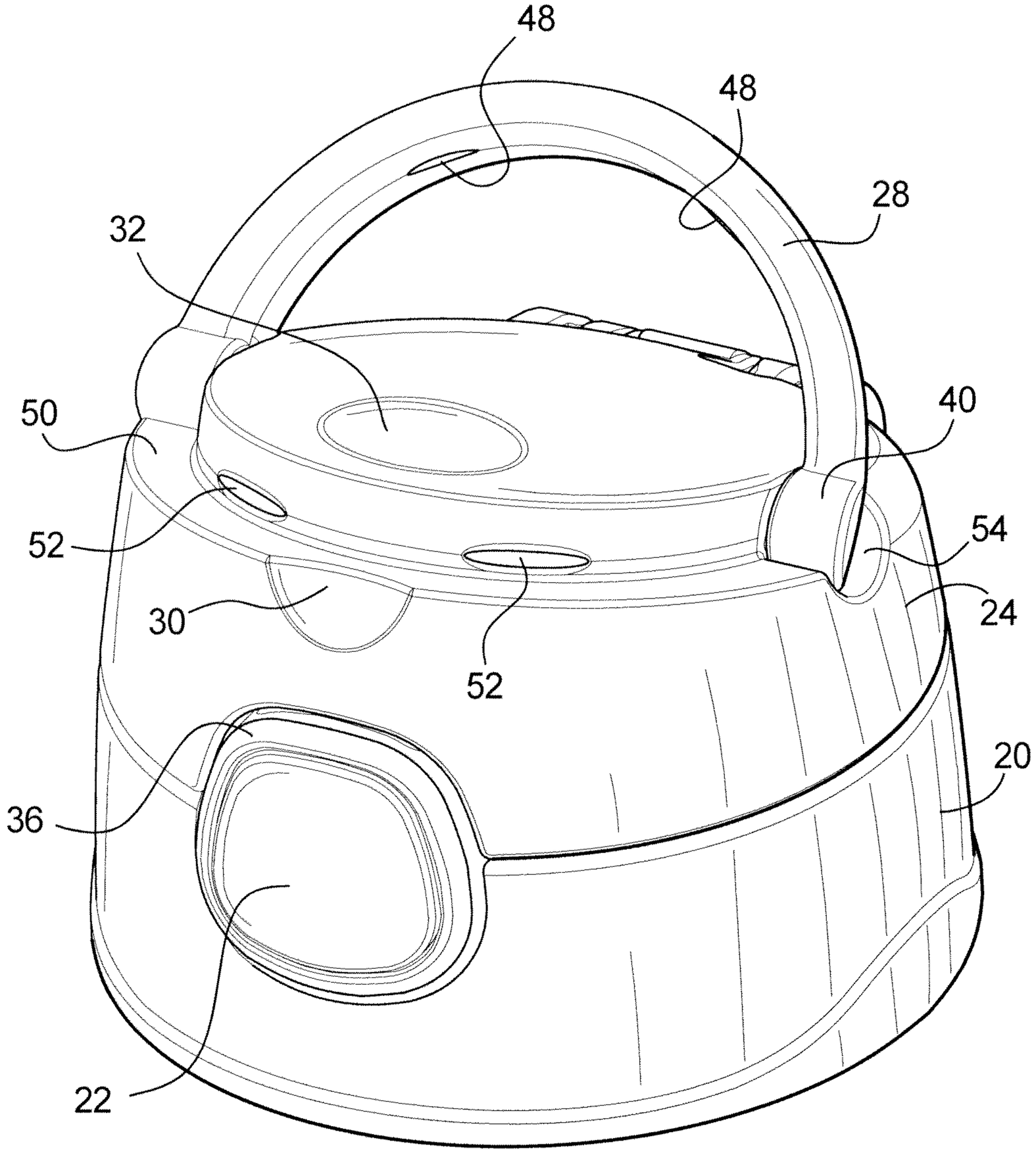

FIG. 4

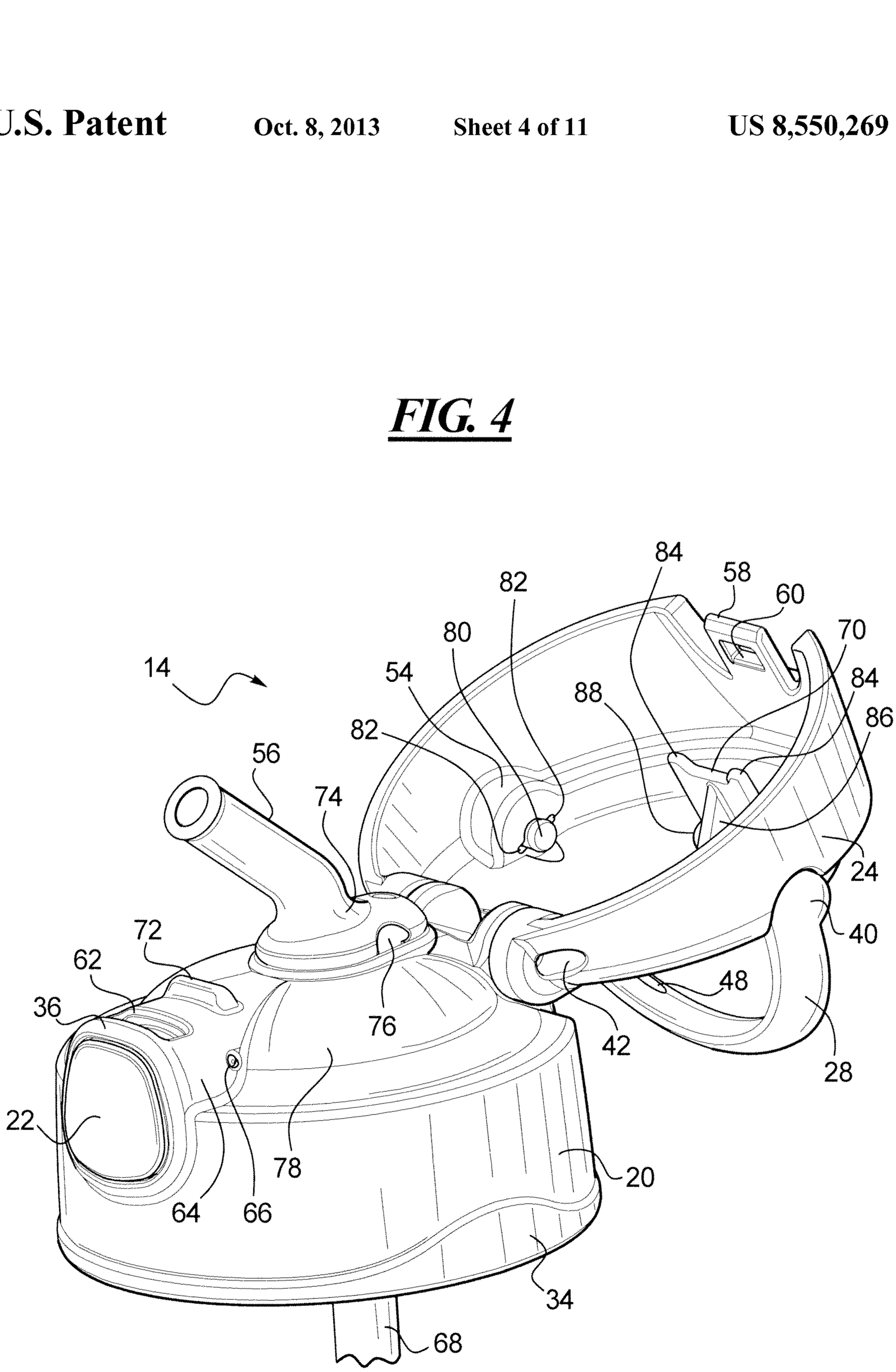
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FIG. 5

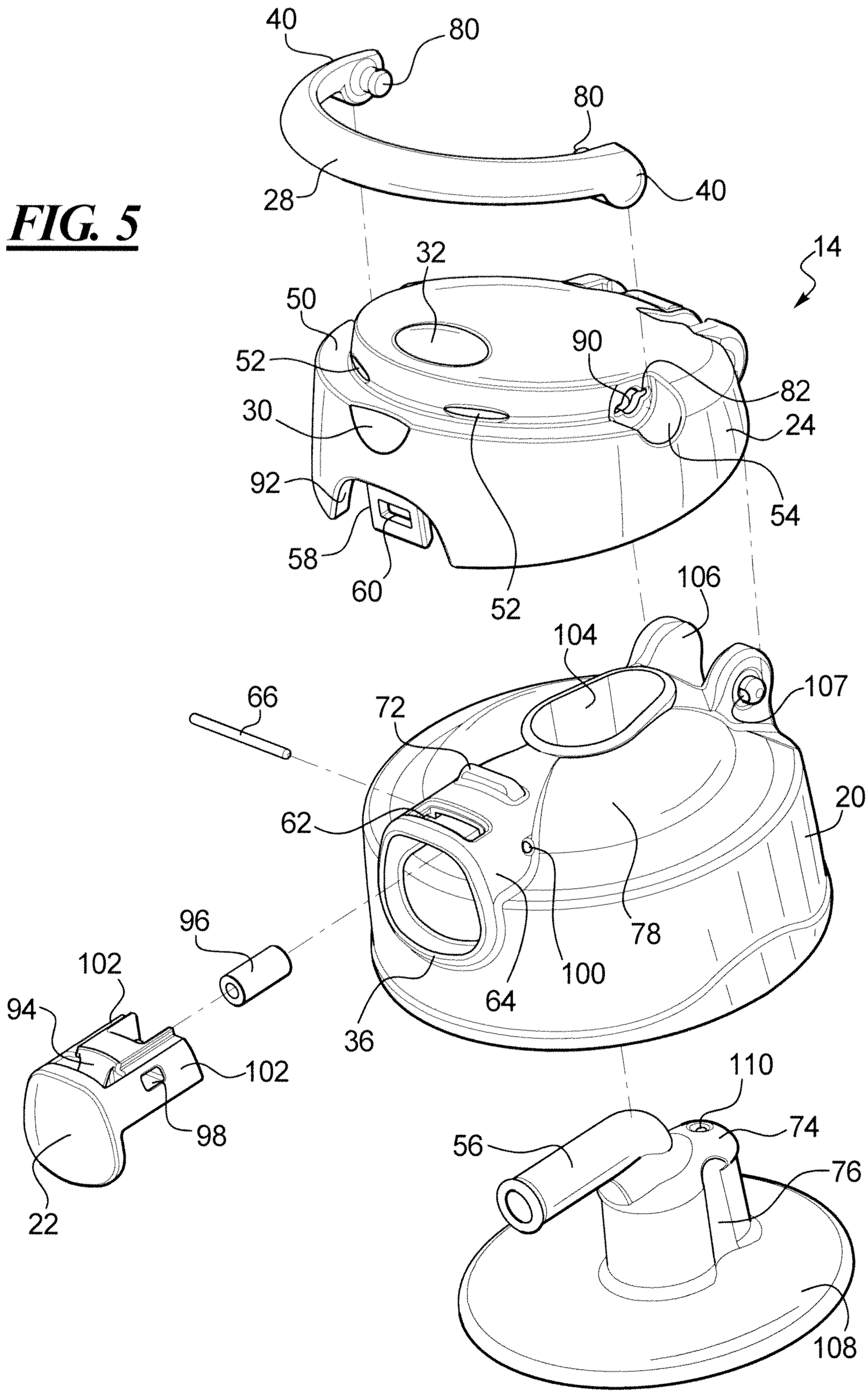
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FIG. 6

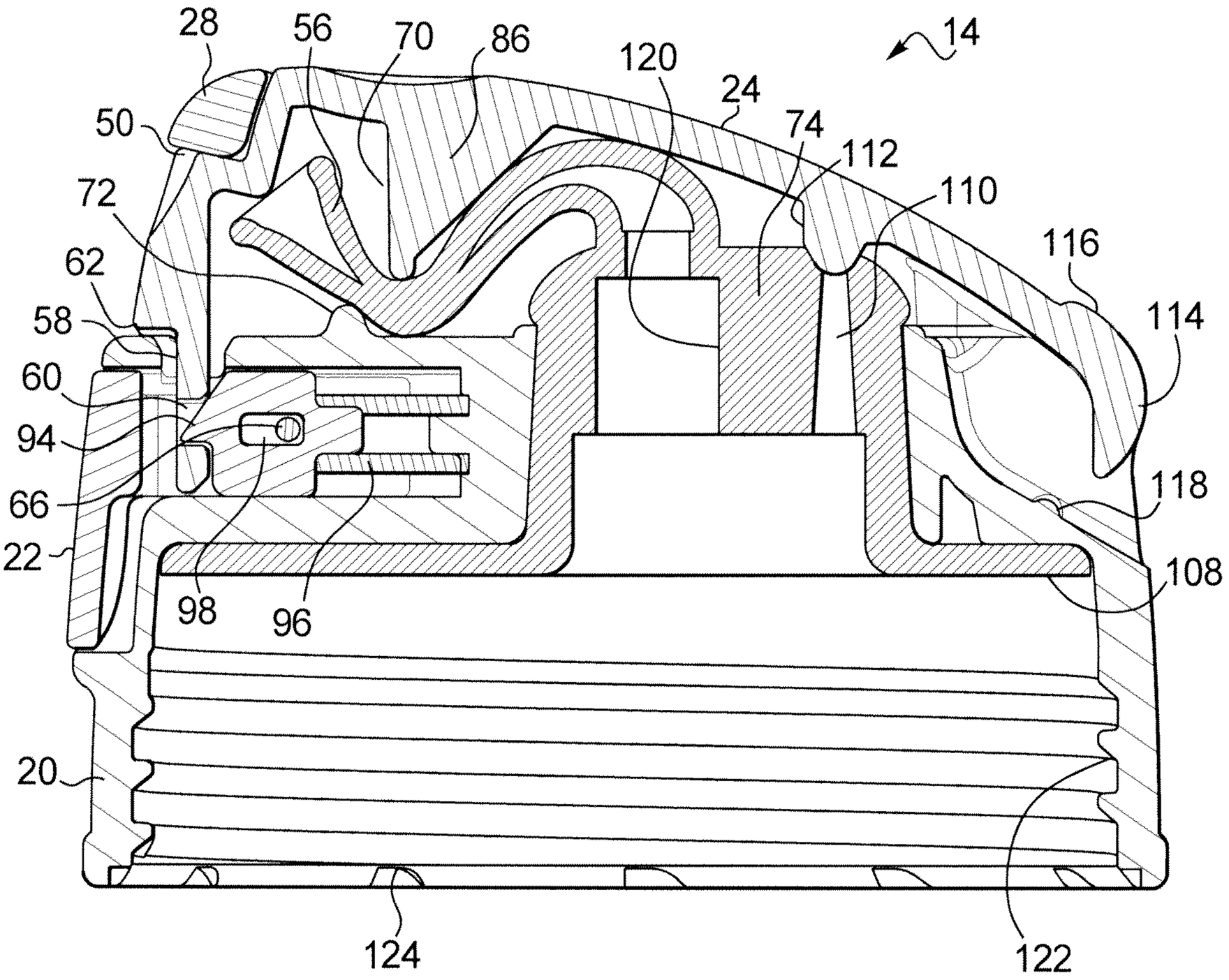
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FIG. 7

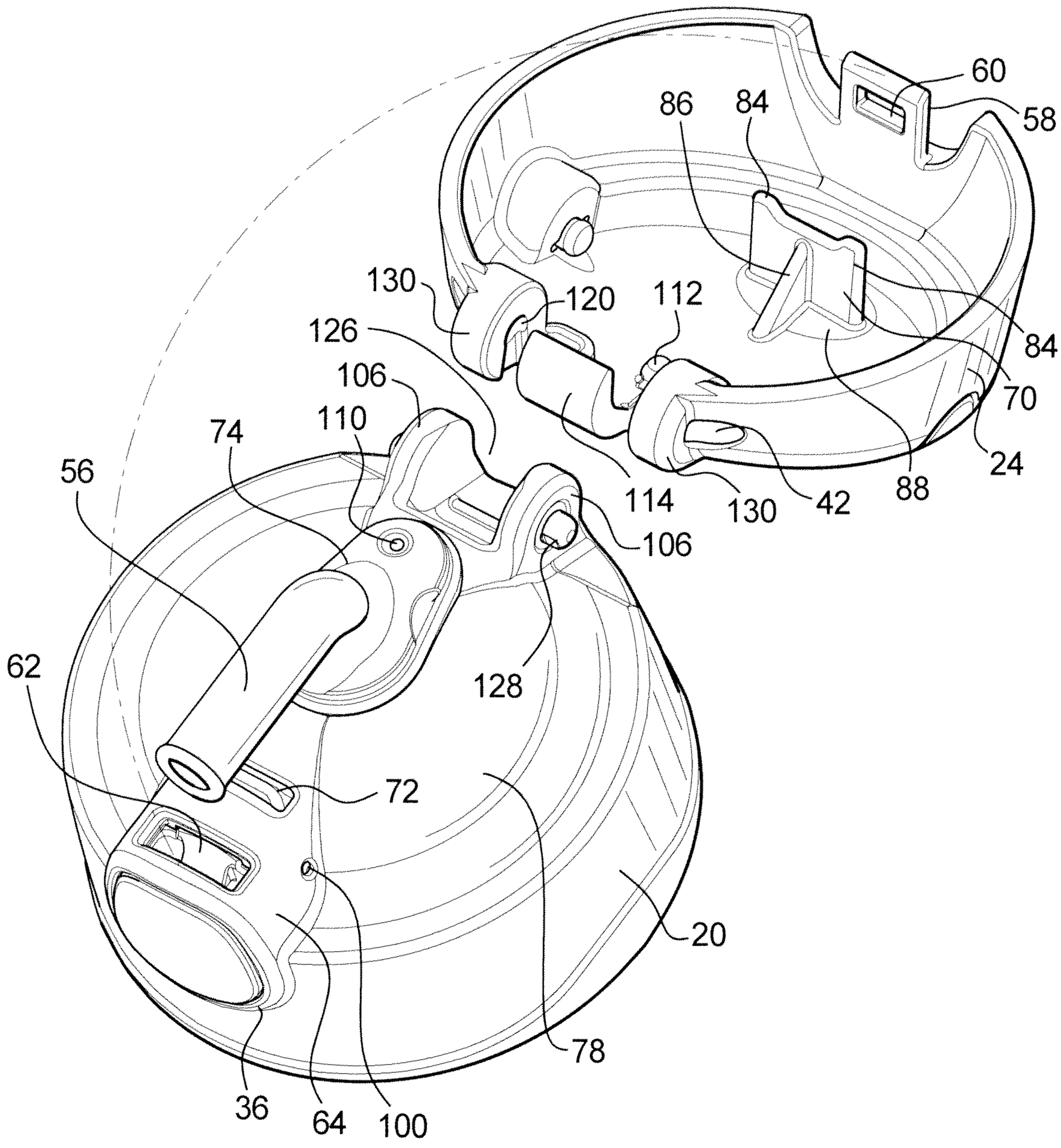
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FIG. 8

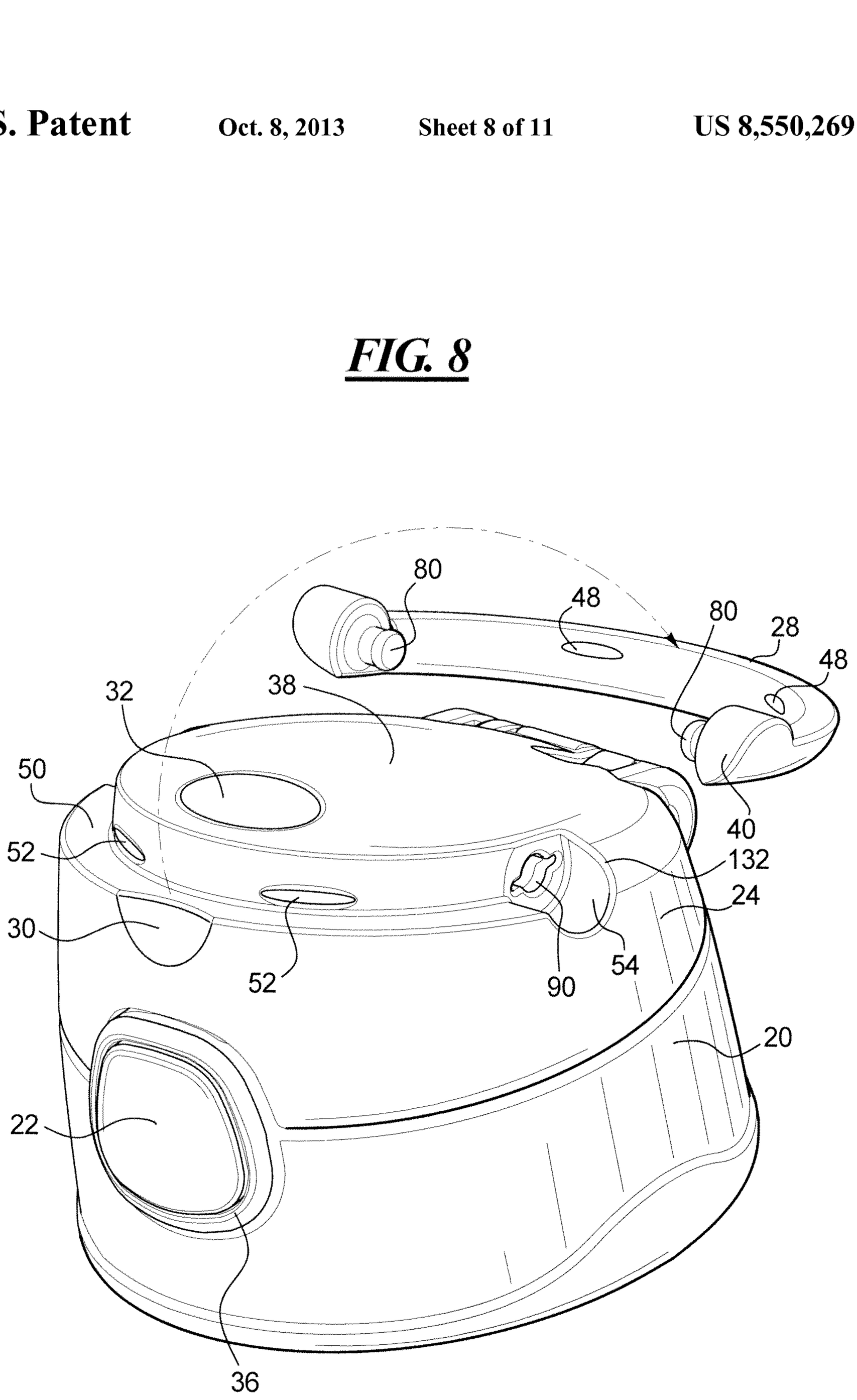
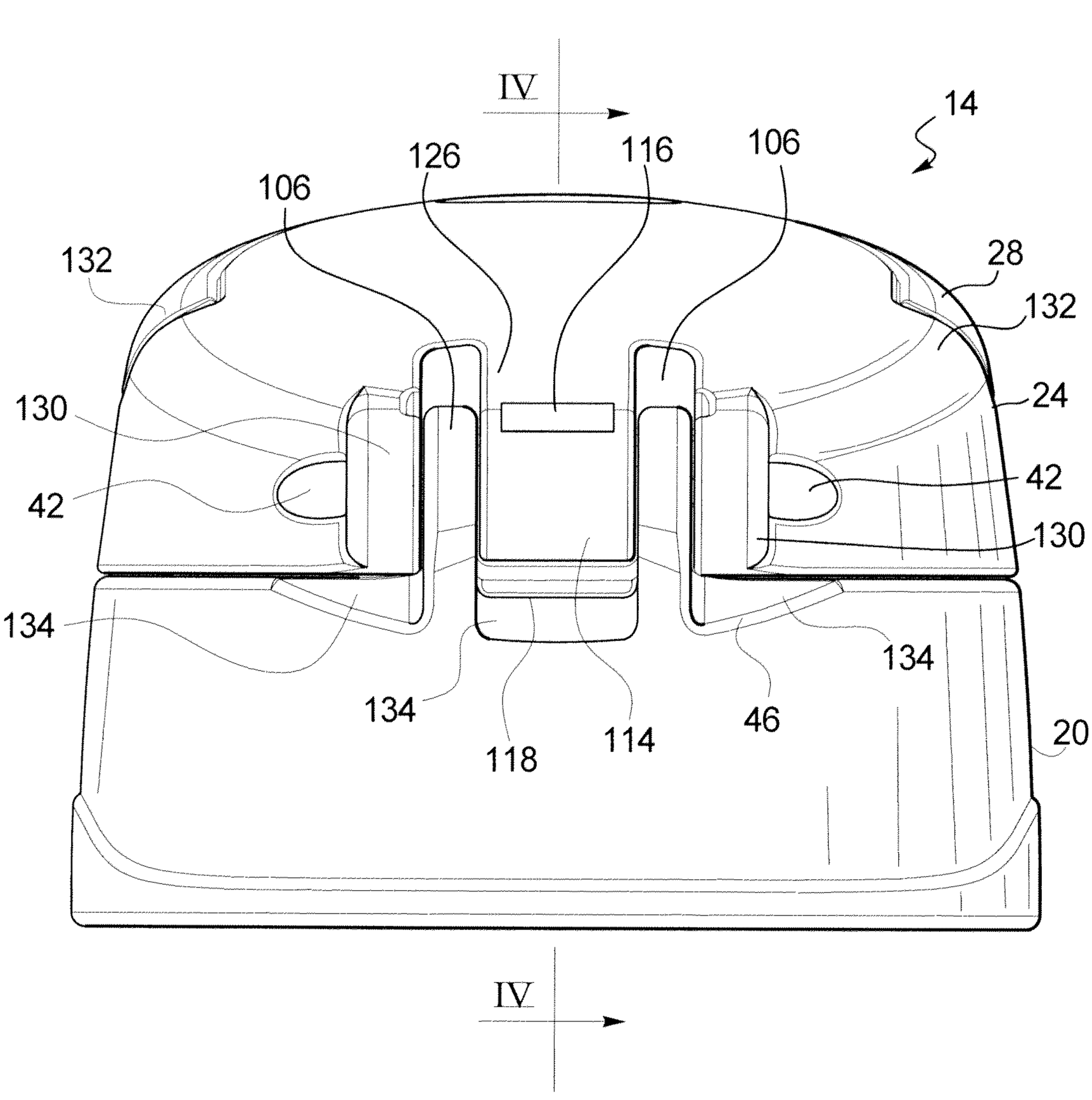


FIG. 9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IV

FIG. 10

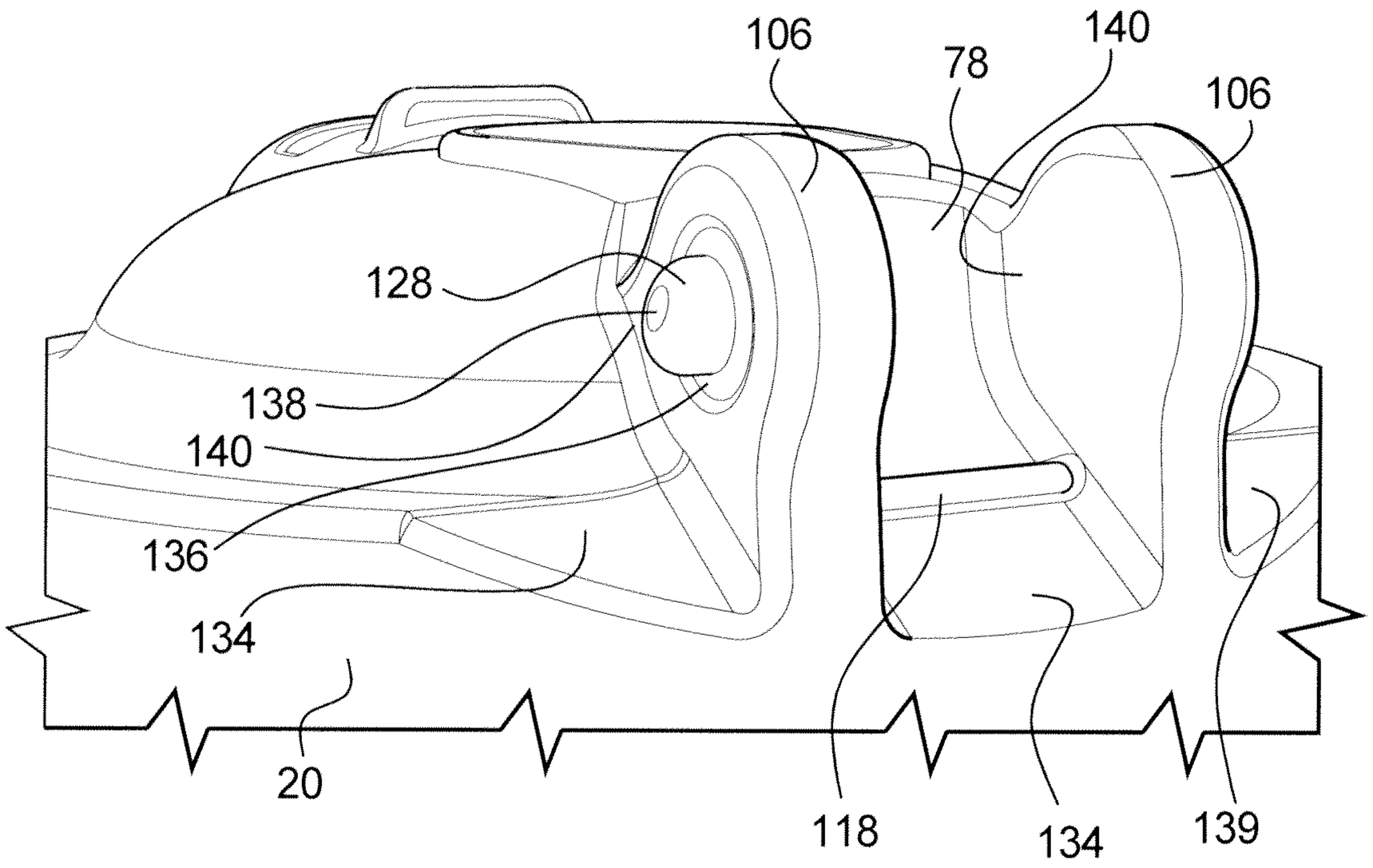
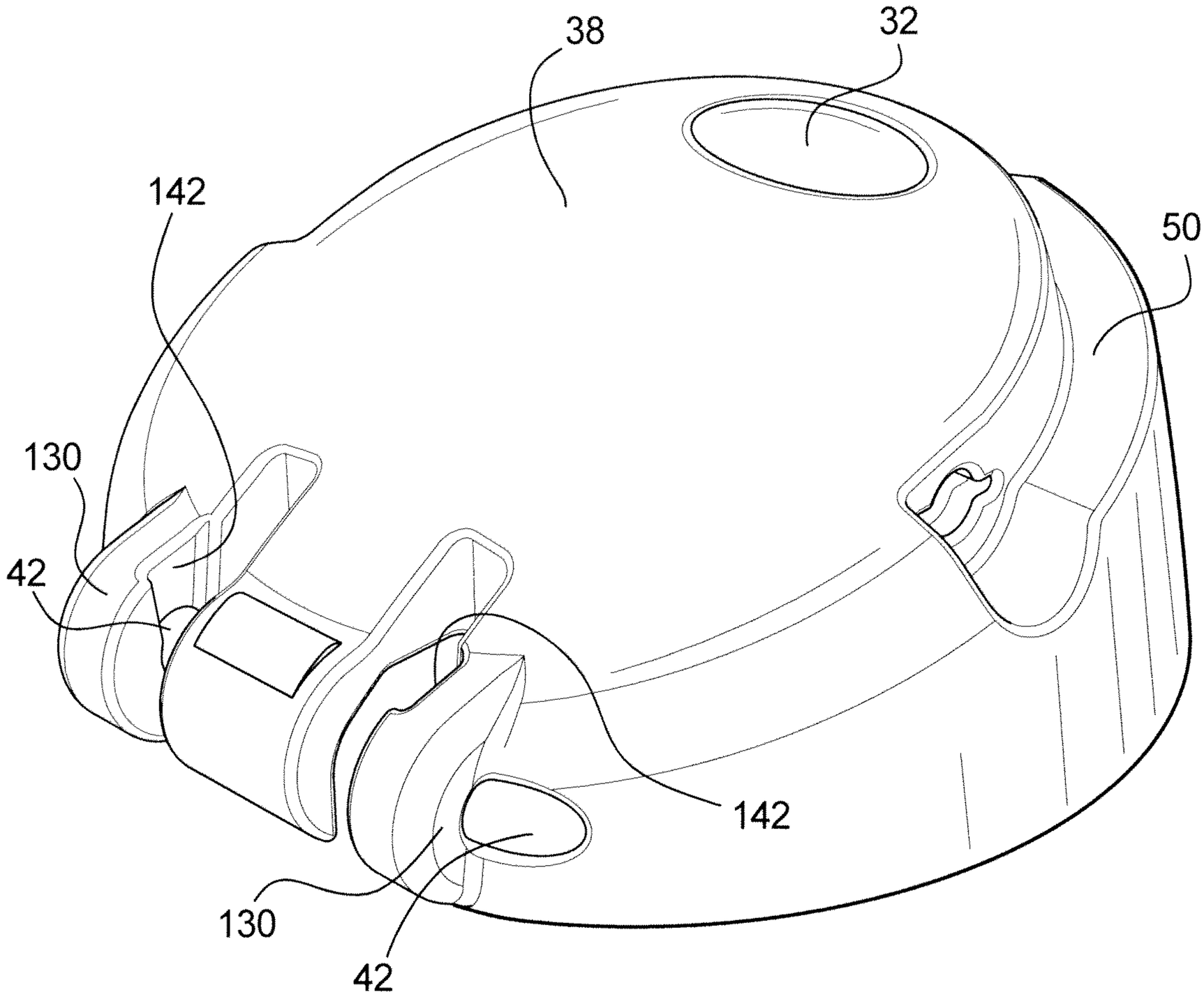


FIG. 11



DRINK BOTTLE AND LID WITH COVER FOR DRINK SPOUT

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to a drink bottle having a removable lid for a drink bottle, and more particularly to drink bottle in which the removable lid has an inner lid with a drink spout and an outer lid that selectively covers the drink spout.

2. Description of the Related Art

Personal beverage bottles are becoming ever more popular and have moved beyond the common beverage bottle packed with a school lunch or in a lunch box. Gyms are filled with members exercising, and many members bring their own beverage bottles for hydration. Hikers, bikers, walkers, commuters, tourists and many others carry beverage bottles as they go on their way. An increasingly common feature of the beverage bottles is a drink nozzle or spout that offers the ability to drink from the bottle without complete removal of the lid from the bottle. Another feature of some drink bottles is a cover for drink spout or nozzle to keep the spout or nozzle clean between drinking.

An example of a beverage bottle having a removable lid with a drink spout and a cover selectively securable over the drink spout is U.S. design Pat. D592,012 S. Another example is shown in U.S. design Pat. D609.964 S.

SUMMARY OF THE INVENTION

The present invention provides a beverage bottle with a removable lid wherein the lid has an inner lid with a drink spout and an outer lid or cover that pivots to selectively cover the drink spout. The outer lid may be locked to the inner lid when in the closed positioned. A push button on the inner lid can be operated to release the locked outer lid, permitting the outer lid to open so as to permit drinking from the drink spout. The inner and outer lids are connected to one another by a hinge that is selectively releasable to permit the outer lid to be removed from the inner lid. The outer lid can be readily reattached to the inner lid by reattaching the hinge elements to one another. The structures of the inner and outer lids are formed to promote release of the outer lid from the inner lid when the outer lid is subject to a release force while providing a reinforced mounting of the hinge elements that resist breakage.

The hinge that connects the inner lid and outer lid may be configured to block openings in the hinge structure to avoid pinching of fingers or other things which might otherwise occur.

The outer lid may include a bail handle by which the bottle can be carried. The bail handle is movable between a deployed position at which it extends from the outer lid and a stored or stowed position at which it fits into a recess in the outer lid. The bail handle is selectively releasable from the outer lid when subject to a release force. The structure of the bail handle and the outer lid is configured to promote release of the bail handle without breakage when subject to a release force. The bail handle is readily reattached to the outer lid.

The push button by which the outer lid is released from the locked position on the inner lid may be enclosed within a tunnel in the inner lid to shield elements of the push button mechanism.

As a result, a more durable beverage bottle is provided that resists breakage by permitting release of reattachable components.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a top perspective view showing a drink bottle according to the principles of the present invention;

FIG. **2** is a side elevational view of the present drink bottle;

FIG. **3** is a front perspective view of the removable lid of FIGS. **1** and **2** showing an outer lid or cover in a closed position and a bail handle in a deployed position;

FIG. **4** is a perspective view of the removable lid showing the outer lid or cover in an open position;

FIG. **5** is an exploded view of the removable lid showing an inner lid, an outer lid, bail handle, release button and drink spout;

FIG. **6** is a cross-sectional view of the removable lid along the section line IV-IV of FIG. **9**;

FIG. **7** is a top perspective view showing the outer lid or cover removed from the inner lid;

FIG. **8** is a front perspective view of the removable lid showing the bail handle removed from the outer lid;

FIG. **9** is rear elevational view of the removable lid;

FIG. **10** is an enlarged perspective view of the hinge uprights of the inner lid; and

FIG. **11** is a top rear perspective view of the outer lid or cover.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring first to FIG. **1**, a beverage bottle **10** includes a bottle body **12** to which is attached a removable lid **14**. The bottle body **12** may be of any suitable material, including metal, plastic, glass, rubber and combinations thereof and may be insulated or un-insulated. In the illustrated embodiment, the bottle body **12** is formed of an insulated stainless steel body part **16** on the bottom of which is fastened a plastic or rubber base **18**. The bottle body **12** of a preferred embodiment is of a double-walled construction between which is an evacuated space, forming a so-called vacuum bottle. The lid of the present invention may be used on a rigid bottle, as illustrated, or on a flexible bottle. The flexible bottle permits the user to squeeze the bottle to force the beverage from bottle, while the rigid bottle requires the user to draw the liquid out of the bottle through suction or by pouring the liquid from the bottle.

The removable lid **14** is secured to the mouth of the bottle **12** by a threaded connection in the illustrated embodiment, as will be apparent in FIG. **6**. Threads are formed about the mouth of the bottle **12** and cooperating threads are formed within the lid **14** to that the lid **14** may be threadably attached to and detached from the bottle **12**. The bottle **12** may be a narrow-mouth bottle or a wide-mouth bottle, a wide-mouth bottle is shown. Other fastening means to attach the lid **14** to the bottle **12** may be provided instead, such as a snap-on lid that fits onto a rim on the bottle, a bayonet attachment, or other lid attachment structure.

The removable lid **14** has an inner lid **20**, a push button **22**, an outer lid or cover **24** and a hinge **26** that connects the inner lid **20** to the outer lid **24**. A bail handle **28** is provided on the outer lid **24**. A thumb notch **30** is provided on the outer lid **24** to enable the user to engage the bail handle **28** so as to move the bail **28** from a stowed condition, as shown, to a deployed condition. A depression **32** is formed on the top of the outer lid

24 on which the user may press to cause the outer lid **24** to engage the inner lid **20** in a locked condition.

In FIG. **2**, the bottle **10** has the base **18** that provides protection for the bottom of the bottle as well as providing a relatively wide surface on which the bottle is rested when standing. The base is of a plastic material, such as polypropylene, although other materials are of course possible. The bottle body **16** has a smooth surface which may be provided with patterns, such as by printing, painting, embossing or otherwise. The inner lid **20** in the illustrated embodiment includes a decorative embossing **34**. Other patterns or shapes may be provided on the inner lid **20** instead. The inner lid **20** has a raised rim **36** surrounding the button **22** that projects slightly from the front of the lid **14**. The upper lid **24** includes a cut-out that accommodates the raised rim **36**. The upper lid **24** also has a sloping, domed top surface **38**, along the edge of which is the stowed bail handle **28**. The ends **40** of the bail handle **28** are semi-circular and fit into semi-circular recesses in the outer lid **24**. At the hinge **26** is seen an opening **42** within which is seen a hinge pin. The lower edge **44** of the outer lid **24** extends in a flat plane generally transverse to the axis of the bottle **10**. The inner lid **20** includes a correspondingly shaped upper edge except that a bevel **46** is provided in the inner lid **20** adjacent the hinge **26**.

Turning to FIG. **3**, a user has moved the bail handle **28** to the deployed position so that it extends from the outer lid **24** and forms a carrying handle. The bottle **10** may be carried by the bail handle **28** or hung by the bail handle **28**, such as on a hook for a store display. The inner surface of the bail handle **28** includes two retainer projections **48** that extend inwardly. A recess channel **50** is formed on the outer lid **24** for receiving the bail handle **28** when in the stored position, as shown in FIG. **1**. Within the recess channel **50** is provided two retainer indentations **52** into which the projections **48** fit when the bail handle **28** is in the stored position. The bail handle **28** snaps into the stowed position in the recess channel **50** and is held in place by the retainer projections **48** and retainer indentations **52** until a user inserts a finger into the thumb notch **30** and forces the bail handle **29** out of the snap engagement stowed position. Other numbers or arrangements of projections, indentations or other structures for retaining the bail handle in position are contemplated as well.

The bail handle **28** includes the semi-circular ends **40** that rotate in the semi-circular recesses **54** at the ends of the recess channel **50** in the outer lid **24** when the bail handle **28** is moved between the stowed and deployed positions.

FIG. **4** shows the outer lid or cover **24** in the open position, revealing a drink spout **56**. The outer lid **24** is movable to the open position after a user releases the locking mechanism by pressing the release button **22**. The locking mechanism includes a tab **58** on the outer lid **24** that has an opening **60** extending through the tab **58**. The tab **58** is at the cut-out in the outer lid **24** that accommodates the projecting rim **36** when the outer lid **24** is closed. As the outer lid **24** is pivoted to the closed position, the tab **58** fits into a slot **62** on the inner lid **20**. Within the slot **62** is a catch mechanism that engages the opening **60** in the tab **58** to hold the outer lid **24** in the closed position on the inner lid **20**. The slot **62** is formed in a tunnel structure **64** formed on the inner lid **20**. The tunnel **64** encloses the working parts of the locking mechanism that is operated by the button **22** to protect it from damage and to keep unwanted matter out. For example, spilled beverages are kept from the locking mechanism by the tunnel **64**. The raised rim **36** that extends from the outer lid **24** around the button **22** when the outer lid **24** is closed is at the end of the tunnel **64**. An end of a pin **66** that holds the locking mechanism in the tunnel **64** is visible at the surface of the tunnel **64**. The pin **66** extends into and through the tunnel **64**.

The drink spout **56** is shown extending upwardly at a convenient angle for drinking from the drink bottle. The drink spout **56** is connected in fluid communication to a straw **68** that extends from the underside of the inner lid **20** and into the drink bottle **12**. The user may drink from the bottle while keeping the bottle upright by sipping from the spout **56**. The straw **68** preferably extends to the bottom of the bottle **16** and may extend coaxially within the bottle or extend at an angle to a lower corner of the bottle, for example.

The spout **56** is formed of a pliable material, such as silicon rubber that flexes and bends readily. When the outer lid **24** is moved to the closed position, a bending flange **70** extending from the inner surface of the outer lid presses on the spout **56** and bends it down from the upwardly angled position shown in FIG. **4**. The downwardly flexed spout **56** presses against a counter ridge **72** on the inner lid **20**. The counter ridge **72** is on the tunnel **64** in the illustrated embodiment. The combined effects of the bending flange **70** and the counter ridge **72** is to pinch the spout **56** so as to close the spout and prevent leakage of fluid from the drink bottle **10**.

The spout **56** extends from a spout base or pedestal **74** that is mounted in an opening in the inner lid **20**. The spout base **74** is shaped in an extended shape in a direction perpendicular to the axis of the fluid passageway so the spout **56** is prevented from being rotated in the inner lid **20**. The drink spout **56** is assured of facing toward the button **22**. A notch **76** is formed on each side of the spout base **74**. The notches **74** permit the spout base **74** to deform for mounting in the opening of the inner lid **20**.

The inner lid **20** has a dome shaped upper surface **78**. The spout base **74** is mounted on the dome **78**, thereby positioning the spout **56** higher on the bottle **10** for more convenient drinking. The dome **78** receives the tunnel structure **64** in which the release button **22** is mounted, thereby strengthening the tunnel **64**. The dome **78** also strengthens the hinge structure, as will be described hereinafter.

The bail handle **28** is connected to the outer lid **24** by pins **80** that extend from the bail handle **28** through openings in the outer lid **24** at the recess **54**. The openings in the outer lid **24** that receive the pins **80** include slots **82**.

The bending flange **70** on the inside of the outer lid **24** has projections **84** on either side to keep the drink spout **56** centered on the flange **70** when closing the outer lid **24**. The bending flange **70** is supported by a gusset **86**. In the view of FIG. **4** can be seen an edge of a projection **88** on the inside of the outer lid **24**. The bending flange **70** and gusset **86** are mounted on the projection **88**. The projection **88** is the inside surface of the depression **32** on the outside of the outer lid **24**. By this arrangement, pressure exerted by the user at the finger-shaped depression **32** is transmitted directly through the bending flange **70** and gusset **86** to flex the drink spout **56** and bring the outer lid **24** to the closed and locked position on the inner lid **20**.

In FIG. **5**, the removable lid **14** is shown in exploded view. From the top, the bail handle **28** has the pins **80** extending from the semi-circular ends **40**. Next, the outer lid **24** has the finger depression **32** on the dome-shaped top. The recess channel **50** extends to the semi-circular recesses **54** that include holes **90** into which the pins **80** fit. The slots **82** extend from the holes **90** to permit the material surrounding the holes to flex so that the pins **80** can be inserted into and pulled from the holes **90**. The tab **58** with the opening **60** extends from the outer lid **24** at the cut-out **92** that fits over the tunnel structure **64**. The indentations **52** in the bail recess channel **50** by which

the bail **28** is secured in the stowed position and the notch **30** by which the bail **28** is urged from its stowed position are also seen.

In the inner lid **20** is formed the tunnel **64** within which is mounted the button **22**. The button **22** has a catch nose **94** that engages into the opening **60** in the tab **58** of the outer lid **24** when the tab **58** is inserted through the slot **62** in the tunnel **64**. The release button **22** is biased to a position engaging the tab **58** by a spring **96** that is mounted within the tunnel **64** between structures within the inner lid **20** and the button **22**. The spring **96** may be formed or any of several different materials and may be formed as a coil spring or otherwise. In the illustrated embodiment, the spring **96** is a tube of compressible rubber, such as silicone rubber, that compresses when the button **22** is pressed and that returns the button **22** to a locking position when the button **22** is released. Pressing on the button **22** to compress the spring **96** moves the catch nose **94** in the button **22** out of engagement with the opening **60** in the tab **58** of the outer lid **24**, permitting the outer lid **24** to open.

The release button **22** is held in the tunnel **64** by the pin **66** that passes through an opening **98** in the button **22** and through openings **100** in the tunnel **64** of the inner lid **20**. Sliding arms **102** are provided on the release button **22** to facilitate sliding movement of the button **22** within the tunnel structure of the inner lid **20**.

The inner lid **20** has an elongated opening **104** in which is mounted the drink spout **56**. Two hinge uprights **106** are on the rear of the inner lid **20** to which cooperating hinge parts on the outer lid **24** are mounted.

The drink spout **56** is formed of a pliable, food safe material, such as silicone rubber so that it may be bent and flexed to a variety of shapes. The drink spout **56** extends from the spout base or pedestal **74** which is shaped to fit snuggly in the elongated opening **104** of the inner lid **20**. The notches **76** provide a flexing location by which the pedestal is flexed during insertion into the inner lid **20**. The pedestal **74** extends from a gasket disk **108** that is mounted within the inner lid **20** and which forms a fluid-tight seal against the mouth of the bottle **16** when the removable lid **14** is fastened into place. The gasket disk **108** is of a size to accommodate the mouth of the bottle **16**, a gasket disk **108** for a wide mouth bottle is shown. It is also foreseen that the gasket may be separate from the drink spout **56** as well. The spout base or pedestal **74** includes a vent hole **110** by which air enters the bottle **16** during drinking of fluid from the drink spout **56** by a user. The straw **68**, shown in FIG. **4**, is fastened into the spout base or pedestal **74** so as to extend into the interior of the bottle **16**.

The spout pedestal **74** is insertable into the opening **104** in the inner lid **20** during assembly of the present removable lid **14**. The snug fit of the pedestal **74** in the opening **104**, and possibly the addition of a flange extending from the pedestal **74** above the top of the opening, holds the drink spout **56** in position in the inner lid **20**. The notches **76** on the sides of the pedestal **74** permit flexing of the pedestal **74** as it is inserted. The drink spout **56** can be removed from the inner lid **20** by forcing the pedestal **74** out of the inner lid **20**. The compressible pedestal **74**, in part due to the notches **76**, facilitates removal of the drink spout **56**. This permits the spout **56** to be cleaned and possibly to be replaced if needed. The drink spout **56** is reattached to the inner lid **20** by inserting the pedestal **74** into the opening **104** and forcing it into position. The straw **68** is also selectively removable for cleaning or replacement as needed.

The bail handle **28**, outer lid **24**, and inner lid **20** are of polypropylene in one embodiment. The release button **22** may be of polypropylene or another material. As noted above, the drink spout **56** and spring **96** are of silicone rubber. Other materials are of course possible and are encompassed within the scope of the present invention.

FIG. **6** provides an interior view of the removable lid **14**. The bail handle **28** is shown in the stowed position in the recess channel **50**. The outer lid **24** has the tab **58** inserted through the slot **62** so that the catch nose **94** engages the opening **60**. This locks the outer lid **24** into the closed position on the inner lid **20**. The spring **96** that is compressed when the release button **22** is pressed is visible in its installed position. The pin **66** that extends through the opening **98** in the button **22**. The button **22** is constructed to permit translation or sliding movement within the inner lid **20** to move been the locked and unlocked positions.

The drink spout **56** is in the crimped position as a result of being pressed by the bending flange **70** and against the counter ridge **72**. This crimping closes the fluid flow passageway within the drink spout **56** to guard against leakage of beverages contained within the bottle **10**. The resilient nature of the drink spout **56** and the material of which it is formed biases the outer lid **24** toward the open position as a result of the bending flange **70** pressing on the spout material. As a result, the outer lid **24** pops open when the release button **22** is pressed.

The vent hole **110** in the pedestal or spout base **74** is closed by a vent pin **112** that extends from the interior of the outer lid **24**. Closing of the vent hole **110** helps prevent leaking of the liquid from the drink bottle, for example when the bottle is stored on its side such as when stuffed into a school locker or gym bag. When the outer lid **24** is opened, the vent pin **112** moves clear of the vent hole **110**, permitting air into the interior of the bottle **10** when a user drinks from the spout **56**. Venting of the bottle during drinking is necessary for rigid bottles due to the low pressure that could otherwise develop as liquid is drawn from the bottle. If the present lid is to be used on a flexible squeeze bottle in which the user squeezes the bottle to force the beverage from the drink spout, the vent hole and the vent closing pin are not necessary and need not be included. If the lid will be used exclusively on a squeeze bottle, the vent hole should be avoided to prevent exit of the liquid via the vent hole during squeezing.

The hinge parts of the outer lid **24** include a center cover **114** that curves to cover a space between the hinge uprights **106** of the inner lid **20**. The center cover includes a cam surface **116** that engages a cam ridge **118** on the inner lid **20** when the outer lid **24** is pivoted to the fully open position. The engagement of the cam surface **116** and cam ridge **118** retains the outer lid **24** in the open position to keep the lid out of the way when a user is drinking from the spout **56**. Only a little force is required to move the cam surface **116** out of retaining engagement with the cam ridge **118** so that the outer lid **24** can be pivoted from the fully open position, such as to move the lid to the closed position.

The gasket disk **108** is positioned on the top interior surface of the inner lid **20** to provide a fluid tight enclosure for any beverages within the bottle **10**. The spout base or pedestal **74** defines a passageway for the vent **110** into the interior of the bottle **10** as well as a fluid passageway through the spout **56** to a straw mounting bore **120** into which the straw **68** (not shown) is mounted. An alternative to the straw mounting bore **120** within the pedestal **74** is to provide a sleeve that extends below the pedestal **74** into the interior of the bottle as a continuation of the fluid passageway within the drink spout **56**. The sleeve receives the end of a straw that reaches to the bottom of the interior of the bottle. The preferred sleeve is a pliable sleeve of the same material as the gasket and spout that holds the straw in a fluid-tight engagement. The interior of the

inner lid **20** is threaded at **122** so that it can be threaded on to threads on the bottle **16**. Notches **124** are provided in the lower edge of the inner lid **20** for removal of the lid **20** from the mold in which the lid is formed.

FIG. **7** shows the outer lid **24** removed from the inner lid **20**. The outer lid **24** has been pivoted to the open position. With the outer lid **24** in the fully open position, in which the outer lid **24** is generally inverted relative to the closed position of the outer lid **24**, the cam surface **116** and a cam ridge **118** cooperate to hold the outer lid **24** open. Further pivoting force on the outer lid **24** results in the hinge elements disengaging from one another to that the outer lid **24** is free of the inner lid **20**, as shown in FIG. **7**. This movement may be referred to as pivoting the outer lid beyond the fully opened position to a release position. The disengagement of the lids **20** and **24** from one another occurs without breaking or otherwise damaging or misshaping the parts. It is also possible that the outer lid **24** may become disengaged from the inner lid **20** other than by being pivoted beyond the fully opened position, for example, if the bottle is inadvertently dropped or otherwise subject to a force.

The outer lid **24** is easily reattached to the inner lid **20** by positioning the lids generally as shown in FIG. **7**, then positioning the hinge parts of the outer lid **24** onto the top of the hinge parts of the inner lid **20** and pressing the hinge parts together. The hinge parts reassemble with a snap and the lids **20** and **24** are once again pivotally joined.

The hinge **26** is formed by the hinge uprights **106** on the inner lid **20** that are spaced from one another to define a center gap **126**. The outward facing surfaces of the hinge uprights **106** are provided with hinge pins **128**. The outer lid **24** has a pair of hinge bearings **130** that are spaced from one another by a distance to span the outside of the hinge uprights **106**. The opening **42** is provided through each of the hinge bearings **130** into which the pins **128** fit when the hinge parts are connected to one another. The center cover **114** extends between the hinge bearings **130**.

The bending flange **70** with the projections **84** and the support gusset **86** mounted on the projection **88** is seen within the outer lid **24** as is the vent pin **112**.

In FIG. **8**, the bail handle **28** has been pivoted to the deployed position as shown for example in FIG. **3** and then a further pivoting force exerted on the bail handle **28**. As a result of the further pivoting force, the bail handle **28** pops loose of the outer lid **24** without damage to either the bail **28** or the lid **24**. Reattachment of the bail handle **28** to the outer lid **24** is accomplished by positioning the pins **80** over the holes **90** in the outer lid **24** and pressing inward to snap the pins **80** back into place.

The bail handle **28** and outer lid **24** are configured to release the bail from the lid when pressed beyond the fully deployed position. In particular, the semi-circular recess **54** in the outer lid **24** has a back edge **132** that slopes downward and outward relative to the pivot axis of the bail handle **28**. The outward sloping back edge **132** is a continuation of the dome-shaped top **38** of the outer lid. When the bail handle **28** is in the fully deployed position, the handle bears against the back edge **132**. Further pressure on the bail handle **28** in the pivot direction results in an outward force on the pivot pins **80** pulling in opposite directions as a top surface of the bail handle **28** slides on the outwardly angled back edges **132**. This force pulls the pins **80** outward from the holes **90** rather than shearing the pins off. The bail **28** is disassembled from the lid without breakage and can readily be reattached.

In FIG. **9**, the rear of the lid **14** in the closed position includes the uprights **106** on the inner lid **20** that define the center gap **126** therebetween. The center cover **114** fits between the uprights **106** to fill the center gap **126**. The center cover **114** carries the cam **116** that engages the cam ridge **118** on the inner lid **20** which holds the outer lid **24** in position when in the open position. The center cover **114** also covers the center gap **126** to prevent fingers or other things from being inserted into the center gap **126** when the lid **24** is closed and thereby getting pinched when the lid **24** is being opened.

The hinge bearings **130** are disposed on opposite sides of the uprights **106** engage the hinge pins **128** to permit pivoting movement of the lids relative to one another. The bevel **46** on the inner lid **20** at the hinge includes three beveled surfaces **134** separated by the uprights **106**. The beveled surfaces **134** are positioned so that movement of the outer lid **24** beyond the fully open position causes the outer lid **24** to contact the beveled surfaces **128**, which exerts a disconnecting force on the hinge. In particular, pushing the outer lid **24** past its fully open position causes a lifting motion on the bearings **130** relative to the uprights **106** so that the bearings **130** are pulled off of the hinge pins **128**.

The downward and outwardly sloping back edges **132** of the bail recess channel **50** which cause the bail pivot pins of the bail handle **28** to be pulled outwardly in opposite directions so that they disengage from the holes **90** in the outer lid **24** are apparent in the view of FIG. **9**. When the bail handle **28** is pressed with sufficient force, which may also be termed a disengaging force, against the outwardly sloping back edges **132**, the bail ends slide outwardly along the back edges **132**, resulting in the bail pins **80** being drawn out of the holes. The bail pins **80** each include a widened cap at the free end to hold the pins in the holes **90** and thereby prevent the bail **28** from being disengaged too easily.

An objective is to permit the parts to disengage from one another when subject to a force that might otherwise break the parts, but not to have the parts come apart so easily that the user is constantly faced with reassembling the beverage bottle. A typical user might be able to use the bottle without the parts every becoming disassembled. However, if the beverage bottle is dropped of subject to more than a normal use force, the parts simply pop off without breakage.

Turning to FIG. **10**, the hinge uprights **106** on the inner lid **20** include the hinge pins **128** extending outwardly from the uprights **106**. The hinge pins **128** are encircled by a recess **136**. The recess **136** may provide flexibility to the hinge pins **128** to permit flexing without breakage. The hinge pins **128** include rounded edges and include an angled end surface **138**. The angled end **138** results in the pin **128** having a shorter bearing surface in a direction facing away from the inner lid **20** and a longer bearing surface in a direction facing toward the inner lid **20**. The effect is to require less force for the outer lid **24** to be re-attached to the inner lid **20** than the amount of force for the outer lid **24** to be disconnected from the inner lid **20**. As such, even though the outer lid **24** is removable by pressing beyond the fully open position, re-attachment of the outer lid **24** should be easily accomplished by the user to return the removable lid to its fully operating condition.

Other shapes of hinge pins are encompassed within the invention, including hinge pins that include an end surface transverse to the shaft of the pin. It is foreseen to provide the hinge pins with flats on one or more sides that narrow the pins in a removal and reattachment direction. An example of flats **107** on the hinge pins is shown in FIG. **5**. The flats **107** are on opposite sides of each hinge pin and the flats **107** are oriented to facilitate removal and reattachment of the outer lid in one direction but to resist removal of the outer lid in other direc-

tions. The hinge pins more easily slide along release channels in the hinge bearings in the preferred removal and reattachment direction.

The uprights **106** have a base connected to the inner lid **20** that extends not only in a direction perpendicular to the top surface of the inner lid **20** but also has an extended base portion **140** connected to the dome shaped upper surface **78**. The extended base portion **140** provides a broader base for the uprights so that the uprights are reinforced by the dome **78**. Additional resistance to breakage is provided to that the lid becomes disassembled without breakage. The beveled surface portions **134** are seen as well as the cam ridge **118**.

Turning to FIG. **11**, the outer lid **24** is seen from the top. The dome shaped top surface **38** that includes the depression **32**, the bail recess **50** and the hinge bearings **130** is seen. The hinge bearings **130** include channels **142** that lead from the top surface of the lid **24** to the opening **42** into which the hinge pins **128** fit. The channels **142** provide a pathway for the hinge pins **128** to pass through when the outer lid **24** is removed from the inner lid **20** by pressing the outer lid **24** against the beveled surface portions **134** of the inner lid **20**. As important is that the channels **142** provide a pathway for the hinge pins **128** to follow when the outer lid **24** is reassembled on the inner lid **20**. As noted above, the outer lid **24** is positioned in an inverted position relative to the inner lid **20**, the hinge elements are positioned together, and then a pressing force is applied to cause the hinge pins **128** to slide along the channels **142** and into place in the openings **42**.

Thus, there has been shown and described a drink bottle having a removable lid that has a drinking spout and a lockable cover or outer lid over the drinking spout. The cover or outer lid and bail handle can become disassembled from the drink bottle without breakage. Both the cover or outer lid and the bail handle are easily reassembled on the drink bottle. The locking mechanism is enclosed within a tunnel structure to cover the moving parts. A raised dome structure on the inner lid extends to the tunnel structure as well as provides a beveled base for the hinge elements that connect the inner and outer lids.

Although other modifications and changes may be suggested by those skilled in the art, it is the intention of the inventor to embody within the patent warranted hereon all changes and modifications as reasonably and properly come within the scope of his contribution to the art.

I claim:

1. A drink bottle and lid, comprising:

a bottle having a mouth with a lid engaging structure;

a removable lid having a cooperating engaging structure for selective engagement with the lid engaging structure of said bottle;

said removable lid including an inner lid and an outer lid, said inner lid including said cooperating engaging structure, said inner lid defining a button tunnel and a spout opening, said button tunnel including an enclosing structure defining an enclosed channel to slidably receive a sliding element, said inner lid including a first hinge portion;

said outer lid including a second hinge portion for pivoting engagement with said first hinge portion to form a hinge so that said outer lid is pivotable relative to said inner lid between an open position and a closed position;

a button mounted within said button tunnel of said inner lid so as to be movable between a lock position and an unlock position, said button including a sliding arm slidably mounted within said channel within said enclosing structure of said inner lid, said sliding arm being enclosed within said enclosing structure to prevent contact with said sliding arm by a user, said sliding arm undergoing translational movement within said enclosed channel during movement of said button between said lock position and said unlock position;

a locking tab extending from said outer lid, said locking tab engaging said button when said outer lid is in said closed position and said button is in said lock position, said locking tab being disengaged from said button when said button is moved to said unlock position;

a drink spout mounted in said spout opening of said inner lid, said drink spout extending from said inner lid at a position to permit a user to drink fluid contained within the bottle from the drinking tube when said outer lid is in the open position, said outer lid covering said drink spout when said outer lid is in said closed position; and

a bail handle mounted on said outer lid and pivotable between a stowed position and a deployed position.

2. A drink bottle and lid as claimed in claim **1**, wherein said sliding arm of said button is a first sliding arm and further comprising a second sliding arm of said button, said first and second sliding arms being slidably received within corresponding enclosed sliding channels within said enclosing structure, said inner lid defines an opening in said enclosing structure of said button tunnel, and said outer lid includes a tab that extends through said opening in said enclosing structure and into engagement with said portion of said button disposed between said first and second sliding arms and within said enclosing structure when said outer lid is in said locked position.

3. A drink bottle and lid, comprising:

a bottle having a mouth with a lid engaging structure;

a removable lid having a cooperating engaging structure for selective engagement with the lid engaging structure of said bottle;

said removable lid including an inner lid and an outer lid, said inner lid including said cooperating engaging structure, said inner lid defining a button tunnel and a spout opening, said inner lid including a first hinge portion;

said outer lid including a second hinge portion for pivoting engagement with said first hinge portion so that said outer lid is pivotable relative to said inner lid between an open position and a closed position;

a button mounted within said button tunnel of said inner lid so as to be movable between a lock position and an unlock position;

a locking tab extending from said outer lid, said locking tab engaging said button when said outer lid is in said closed position and said button is in said lock position, said locking tab being disengaged from said button when said button is moved to said unlock position;

a drink spout mounted in said spout opening of said inner lid, said drink spout extending from said inner lid at a position to permit a user to drink fluid contained within the bottle from the drinking tube when said outer lid is in the open position, said outer lid covering said drink spout when said outer lid is in said closed position; and

a bail handle mounted on said outer lid and pivotable between a stowed position and a deployed position;

wherein said first and second hinge portions include hinge pins and hinge bearings, said hinge bearings including channels through which said hinge pins move when said when the outer lid is moved beyond a fully open position so as to release said first and second hinge portions from one another.

4. A drink bottle and lid as claimed in claim **3**, wherein said hinge pins are of a generally cylindrical shape and each have an angled end surface.

5. A drink bottle and lid as claimed in claim 4, wherein said hinge pins are encircled by a recess channel in one of said first and second hinge portions having said hinge pins.

6. A drink bottle and lid as claimed in claim 1, wherein said outer lid includes a recess channel, and wherein said bail handle fits into said recess channel in said outer lid when in a stowed position and extends from said recess channel when in an extended position.

7. A drink bottle and lid, comprising:

a bottle having a mouth with a lid engaging structure;

a removable lid having a cooperating engaging structure for selective engagement with the lid engaging structure of said bottle;

said removable lid including an inner lid and an outer lid, said inner lid including said cooperating engaging structure, said inner lid defining a button tunnel and a spout opening, said inner lid including a first hinge portion;

said outer lid including a second hinge portion for pivoting engagement with said first hinge portion so that said outer lid is pivotable relative to said inner lid between an open position and a closed position;

a button mounted within said button tunnel of said inner lid so as to be movable between a lock position and an unlock position;

a locking tab extending from said outer lid, said locking tab engaging said button when said outer lid is in said closed position and said button is in said lock position, said locking tab being disengaged from said button when said button is moved to said unlock position;

a drink spout mounted in said spout opening of said inner lid, said drink spout extending from said inner lid at a position to permit a user to drink fluid contained within the bottle from the drinking tube when said outer lid is in the open position, said outer lid covering said drink spout when said outer lid is in said closed position; and

a bail handle mounted on said outer lid and pivotable between a stowed position and a deployed position;

wherein said outer lid includes a recess channel, and wherein said bail handle fits into said recess channel in said outer lid when in a stowed position and extends from said recess channel when in an extended position;

wherein said bail handle is mounted in said outer lid by pivot pins, said outer lid having outwardly sloping surfaces against which said bail handle bears when said bail handle is moved beyond a fully deployed position, said outwardly sloping surfaces causing said pivot pins to disengage from said outer lid when said bail handle is pressed against said outwardly sloping surfaces with a disengaging force so that said bail handle disengages from said outer lid.

8. A drink bottle and lid, comprising:

a bottle having a mouth with a lid engaging structure;

a removable lid having a cooperating engaging structure for selective engagement with the lid engaging structure of said bottle;

said removable lid including an inner lid and an outer lid, said inner lid including said cooperating engaging structure, said inner lid defining a button tunnel and a spout opening, said inner lid including a first hinge portion;

said outer lid including a second hinge portion for pivoting engagement with said first hinge portion to form a hinge so that said outer lid is pivotable relative to said inner lid between an open position and a closed position;

a button mounted within said button tunnel of said inner lid so as to be movable between a lock position and an unlock position;

a locking tab extending from said outer lid, said locking tab engaging said button when said outer lid is in said closed position and said button is in said lock position, said locking tab being disengaged from said button when said button is moved to said unlock position;

a drink spout mounted in said spout opening of said inner lid, said drink spout extending from said inner lid at a position to permit a user to drink fluid contained within the bottle from the drinking tube when said outer lid is in the open position, said outer lid covering said drink spout when said outer lid is in said closed position; and

a bail handle mounted on said outer lid and pivotable between a stowed position and a deployed position;

wherein said hinge includes two spaced hinge bearings on said outer lid for engaging two hinge mounts on said inner lid, and further comprising a curved cover between said hinge bearings, said curved cover blocking access to a space between said two hinge mounts by a user's finger.

9. A drink bottle and lid, comprising:

a bottle having a mouth with a lid engaging structure;

a removable lid having a cooperating engaging structure for selective engagement with the lid engaging structure of said bottle;

said removable lid including an inner lid and an outer lid, said inner lid including said cooperating engaging structure for engagement with said bottle, said inner lid and said outer lid being selectively securable to one another in a closed position, said inner lid defining a spout opening;

a drink spout mounted in said spout opening of said inner lid, said drink spout extending from said inner lid at a position to permit a user to drink fluid contained within the bottle from the drinking tube when said outer lid is in an open position, said outer lid covering said drink spout when said outer lid is in said closed position;

said inner lid including a first hinge portion, said outer lid including a second hinge portion for pivoting engagement with said first hinge portion so that said outer lid is pivotable relative to said inner lid between said open position and said closed position, said outer lid being securable in said open position, said outer lid being movable beyond said open position to cause release of said first and second hinge portions from one another; and

one of said first and second hinge portions including hinge pins and the other of said first and second hinge portions defining openings into which said hinge pins are disposed for pivoting movement, said other of said first and second hinge portions define channels extending from said openings through which said hinge pins move during the release of the first and second hinge portions as said outer lid is moved beyond said open position.

10. A drink bottle and lid as claimed in claim 9, wherein said inner lid includes a beveled surface adjacent said first hinge portion, said outer lid bearing against said beveled surface when said outer lid is moved beyond said open position so as to cause said first and second hinge portions to disengage from one another.

11. A drink bottle and lid as claimed in claim 9, further comprising:

a bail handle mounted on said outer lid and pivotable between a stowed position and a deployed position;

pins extending between said bail handle and said outer lid on which said bail handle pivots between said stowed position and said deployed position;

a disengagement surface on said outer lid against which said bail handle bears when moved beyond said deployed position, said disengagement surface causing said pins to disengage from between said bail handle and said outer lid when a disengaging force is exerted on said bail handle.

12. A drink bottle and lid as claimed in claim **11**, further comprising: a retainer projection that engages a retainer indentation as between said outer lid and said bail handle when said bail handle is in a stowed position to retain said bail handle in said stowed position, said retainer projection being disengaged from said retainer indentation when said bail handle is in said deployed position.

13. A drink bottle and lid as claimed in claim **9**, wherein said hinge pins each have an end surface disposed at an angle to an axis of said pins.

14. A drink bottle and lid, comprising:

a bottle having a mouth with a lid engaging structure;

a removable lid having a cooperating engaging structure for selective engagement with the lid engaging structure of said bottle;

said removable lid including an inner lid and an outer lid, said inner lid including said cooperating engaging structure for engagement with said bottle, said inner lid and said outer lid being selectively securable to one another in a closed position, said inner lid defining a spout opening;

a drink spout mounted in said spout opening of said inner lid, said drink spout extending from said inner lid at a position to permit a user to drink fluid contained within the bottle from the drinking tube when said outer lid is in an open position, said outer lid covering said drink spout when said outer lid is in said closed position;

said inner lid including a first hinge portion, said outer lid including a second hinge portion for pivoting engagement with said first hinge portion so that said outer lid is pivotable relative to said inner lid between said open position and said closed position; and

a bail handle mounted on said outer lid and pivotable between a stowed position and a deployed position;

pins extending between said bail handle and said outer lid on which said bail handle pivots between said stowed position and said deployed position; and

a disengagement surface on said outer lid against which said bail handle bears when moved beyond said deployed position, said disengagement surface causing said pins to disengage from between said bail handle and said outer lid when a disengaging force is exerted on said bail handle.

15. A drink bottle and lid as claimed in claim **14**, wherein said inner and outer lids are selectively detachable from one another by moving said outer lid beyond a fully open position and are selectively reattachable by snapping hinge parts together.

16. A drink bottle and lid as claimed in claim **14**, further comprising:

a push button on said inner lid that is operable to release said outer lid from a closed position over the drink spout; and

a tunnel structure on said inner lid within which said push button is mounted.

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